

THE
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PRACTITIONER

monthly journal for the Practitioner and his Staff

VOL. IV, NO. 3

NOVEMBER, 1953

[*Incorporating the Official Supplement of*
The Dental Laboratories Section of the Surgical Instrument Manufacturers' Association]

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THE DENTAL PRACTITIONER

A Monthly Journal for the Practitioner and his Staff

(Incorporating the Proceedings of the British Society of Periodontology
and the Official Supplement of the S.I.M.A.—Dental Laboratories Section)

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THE DENTAL PRACTITIONER

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November, 1953



EDITORIAL

ORAL HEALTH

THE acceptance of the principle of a high standard of oral health is appreciated by all educated sections of the community, but it is our duty to impart the actual knowledge of how to attain this principle to the community as a whole. This field of sociology is still wide open for research and the ideal method of conveying such knowledge is still uncertain. There are many organizations throughout the country which help in this respect and perform a service by propagating dental health. A great deal is being done through various committees whose members spend long hours in a labour of love conveying the message of good oral health. They are all to be thanked for their work in this important field of dentistry. The Dental Board of the United Kingdom have always taken a special interest in this facet of dentistry, and lectures, pamphlets, films, and slides are available for schools and institutions. It is not just a useful service, it is an essential service which plays an integral part in the health of the nation. The British Society of Periodontology is also making a useful contribution to this study. The dental profession speaks to the patient direct and may instil into him the knowledge of how to attain and maintain dental health, but there is a wider public who do not necessarily visit the dental surgeon for advice and guidance. They tend to visit the dentist for treatment only, and a valuable source of

propaganda is lost. This includes the mothers with children who in their tender years need some form of home treatment in an effort to prevent disease. The question of diet is all-important, but environment and many other factors have to be taken into account. It is in this section of the community where oral health is essential and the preservation of a healthy mouth all-important. The B.B.C. is helping at the present time with a series of talks on dental health each week. This is a most useful contribution and one that we hope will continue. Each country has its own methods of distributing this knowledge, and for full success of this work a study must be made of their work. It is interesting to note that Messrs. Gibbs have announced the offer of a second travelling scholarship for a tour of the United States to study dental health education in that country. Messrs. Gibbs are to be thanked and congratulated on their broad outlook on this aspect of dentistry in offering this scholarship. It will be found that much more is spent in the United States, particularly by individual firms like Messrs. Gibbs, on dental health propaganda. Much of the ravages of dental disease could be prevented by a sound general knowledge of the problem by the public. This knowledge has to be given first: it is being given in small doses, but much remains to be done and any suggestions are more than welcome.

MYOFUNCTIONAL APPLIANCES*

By H. E. WILSON, L.D.S. (Q.U. Belfast)

Consultant Orthodontist to the London Hospital; Lecturer in Orthodontics, London Hospital Medical College

THIS paper is based on the writer's clinical experience with myofunctional appliances. They consist of:—

1. The Monobloc or Andresen appliance.
2. The Oral Screen or Mouth Shield.
3. The Propulsor.

They are distinguished from other appliances in that they are inert, lie passively in the mouth, and require the physiological forces of the oral musculature during the function of swallowing to activate them. Their advantages and disadvantages are:—

Advantages.—They are simple in design and construction and, provided the operator understands their mode of action, are successful in a high percentage of selected cases. They in no way interfere with the function of speech and mastication, consequently there is no restriction in diet or embarrassment in public because they are not worn on these occasions. The danger of increased caries and periodontitis is reduced to a minimum because there is no interference with normal masticatory function and oral hygiene. When treatment has been completed there is less likelihood of relapse and retention is shorter and simpler. Breakages are fewer and when they do occur do not constitute an emergency. Visits for adjustments are fewer, consequently the treatment is less expensive in time and money. Their advantages far outweigh their disadvantages.

Disadvantages.—Their successful use depends on the full co-operation of the patient. They cannot be worn if there is any form of nasal obstruction. They are not so positive in their action as other appliances. If the muscles are in an atonic and relaxed condition and weak in their action, they may not activate the appliance. Cases with such musculature are rare.

The operator's most important duty is to convince the patient of the efficiency of the

appliance and the importance of his co-operation, which is greater than the part played by the dentist once the appliance has been provided. From then on the operator's responsibility is to observe progress and make adjustments; the patient's responsibility is to carry out instructions between visits. Patients like to shoulder this responsibility and respond remarkably well to the suggestion. Whilst this applies to all orthodontic treatment it is especially important when using these appliances.

The instructions are to wear the appliance all night and every night and at least one hour during waking hours. This practice period, as it is called, is generally done during a play period, or while reading, watching television, or listening to radio. It is useless to hand the patient the appliance with the simple remark "It is to be worn".

I. THE MONOBLOC

The monobloc is used for the treatment of:

- a. Post-normal occlusion.
- b. Dental arches in distal relation but maxilla and mandible in normal relation.
- c. Incorrect muscle pattern, poor posture, and poor function.

d. Anterior open bite due to habits.
e. Cases in which an appliance would not be worn by day.

f. Lingual tilting of lower incisors following early loss of deciduous molars.

g. Retention.

a. Treatment of Post-normal Occlusion.—The prognosis is good in post-normal cases where, when the mandible is advanced, the lower molars and premolars are in normal lateral relationship with the upper. (Fig. 1.) If the upper arch is disproportionately larger than the lower one, or the lower cheek teeth occlude lingually to the upper ones, the prognosis is bad.

Post-normal occlusion can be treated at any age, but the earlier it is done the better

* Read before the Société Française D'Orthopédie Dentofaciale at Monte Carlo, May 15, 1953.

the prognosis. Children 3 or 4 years old have been treated with success. Patience is essential as the child must accept the appliance willingly. (Fig. 2.)

When the upper arch is very narrow it should be expanded before treatment with the monobloc is commenced.

molars medially; the surfaces of the appliance corresponding to the lingual surface of the premolars and molars are given an incline so that these teeth move buccally as they elongate. Recently less attention has been paid to trimming the monobloc, as this does not appear to be as important as was

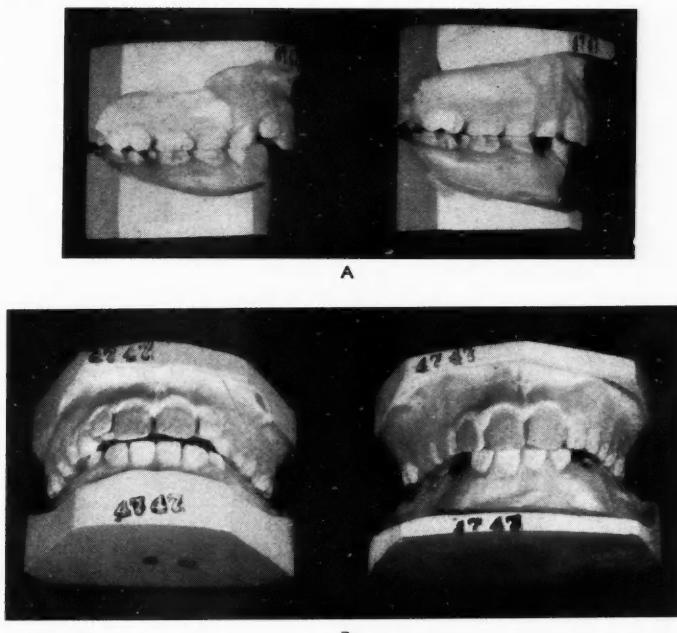


Fig. 1.—Case No. 4747 F. Sucked thumb as a baby. Well-formed arches in post-normal relationship. A, Side view of models in occlusion shows change in 12 months: note change in relationship of first permanent molars. B, Front view: note closing of diastema between upper centrals and improved incisor relationship.

Construction of the Monobloc.—The bite is taken with the lower jaw advanced to bring the upper and lower teeth into correct mediolateral relation, and opened the amount of the freeway space. This is important, for if the arches are not separated at least the amount of the freeway space, the appliance will not engage the teeth in both jaws when they are in the rest position. Consequently there will be no pressure on the teeth and no correction of the malocclusion.

The appliance is trimmed so that it does not touch the upper molars distally and the lower

originally thought, particularly in cases where little or no expansion is necessary. Some cases have improved rapidly where the appliance was trimmed only sufficiently to allow it to be loose in the mouth and to free the incisors.

b. Treatment of Dental Arches in Distal Relation but with Maxilla and Mandible in Normal Relation.—The mandible is in normal relation to the maxilla as in Angle's Class I, but the lower teeth appear to be in distal relation to the upper ones because the lowers tilt distally and the uppers tilt medially. The

construction of the appliance is as for (a) and the prognosis is good.

c. Treatment of Incorrect Muscle Pattern, Poor Posture, Poor Function.—If the orthodontic condition is associated with an immature or incorrect muscle pattern this appliance helps considerably in correcting it.

producing repetitive stimuli, causes functional closure of the jaws and ensures a more ideal environment for normal function of the tongue. It produces a rigid walled cavity which prevents the tongue flowing between the upper and lower teeth and which forces the tongue to make contact with the soft

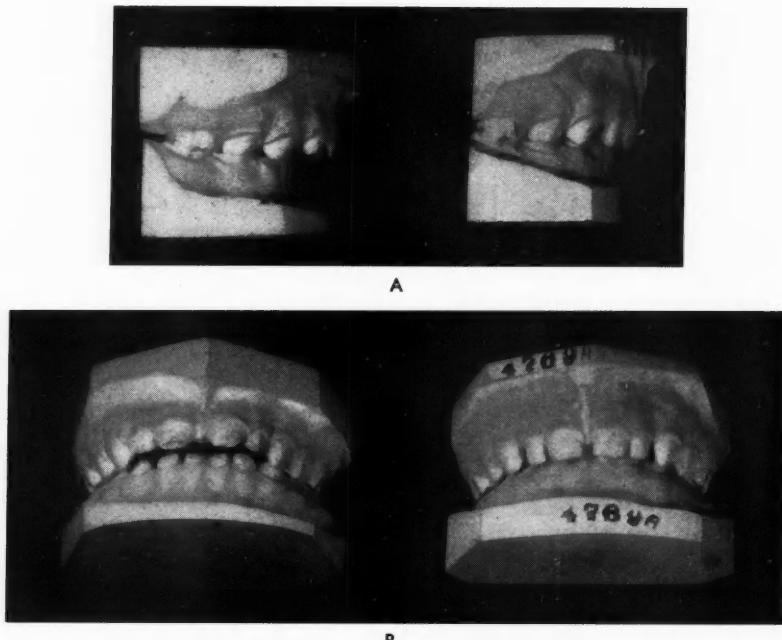


Fig. 2.—Case No. 4769 M. Boy who sucked his lower lip persistently.

A, Models on left, aged 3 years 8 months, show the post-normal relationship and marked overjet. Models on right, aged 4 years 8 months, show improvement. Treatment by monobloc. Patient did not co-operate at first, but his mother put the appliance in at night while he slept and it stayed in place until the morning; later the boy co-operated and the occlusion rapidly improved. **B**, Front view shows incisal relationship.

There may be poor posture and function of the muscles of the lips (anterior oral sphincter) or there may be a poor posture with faulty functioning of the tongue and soft palate (posterior oral sphincter). The tongue in its normal position lies within the dental arches and is in contact with the soft palate. Occasionally it protrudes between all the teeth during function or when the mandible is in its rest position. It may also fall away from the soft palate. The monobloc, by

palate. The tongue eventually becomes accustomed to this new environment and the teeth erupt to reduce the excess of freeway space.

Narrow dental arches with the cheek teeth tending to tilt lingually give the typical picture of poor tongue posture. The construction of the appliance is the same as for (a) and (b) if there is post-normal occlusion. If the arch relationship is normal the mandible need not be advanced in the bite stage. It

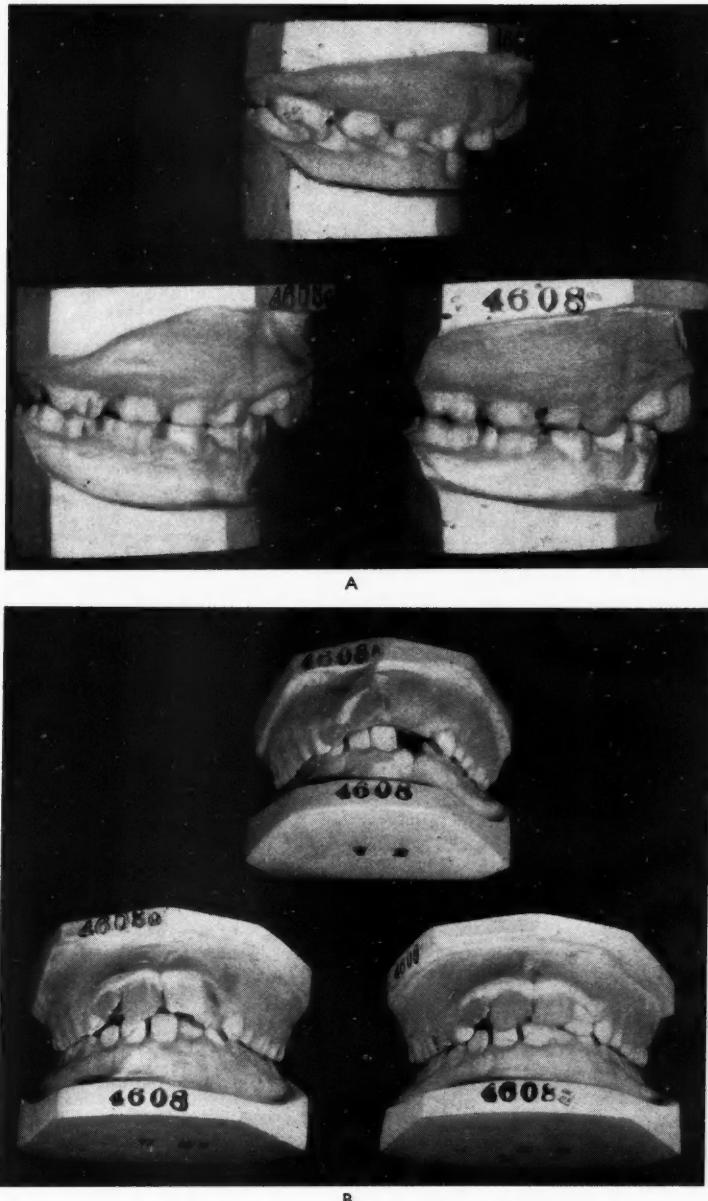


Fig. 3.—Case No. 4608 F. Narrow arches in post-normal relationship. Faulty posture.

A, Side view shows change in relationship in 12 months. Top model shows original condition; Left, 7 months after appliance (monobloc) was fitted; Right, 12 months after. B, Front view of same models showing incisor relationship.

may be necessary in some cases to incorporate an expansion screw in the monobloc, or to expand the arches with other appliances before the monobloc is fitted.

d. Treatment of Anterior Open Bite due to Habits.—The monobloc is good treatment for anterior open bite due to habits. The percentage of successful cases is very high. It

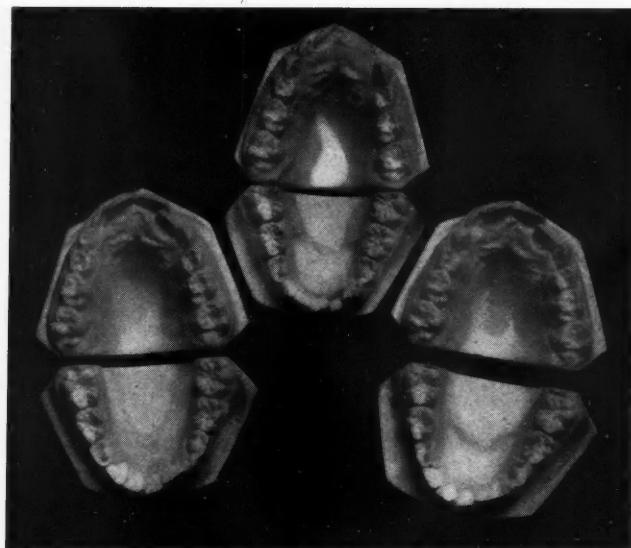


Fig. 4.—Occlusal views of same case: note change in arch width between lingual surfaces of upper second deciduous molars; in the top model (aged 7 years 2 months) this is 23.5 mm., which had remained constant for over three years. Seven months after the appliance was fitted the width was 26.0 mm. and twelve months after it was 28.0 mm. This change is probably due to improved muscle tone assisted by the trimming of the appliance.



A



B

Fig. 5.—Case 13051/51 F.
A, Illustrates the tongue push into the space between the incisors and premolars.
B, Illustrates the puckering of the lower lip during the action of swallowing.

Mouth-breathing, often associated with this muscle pattern, is corrected by the monobloc. (Figs. 3, 4.)

assists the patient to overcome the habit and provides something to suck in place of the finger or thumb; if this habit has ceased but

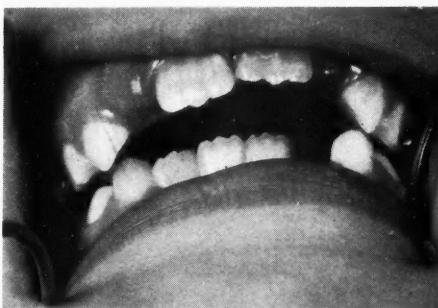
**A****B**

Fig. 6.—Case No. 37217/52 F.

A, Open bite produced by sucking left thumb. **B**, Shows puckering of the lower lip during swallowing.

**A****B**

Fig. 7.—Case No. 1947 F. Patient aged 11 years who sucked her thumb since she was a baby, ceasing habit immediately after first attendance at the hospital.

A, Model on left shows condition before fitting monobloc. Improvement was rapid and $2\frac{1}{2}$ years later a lower appliance was fitted to complete the alignment of the lower incisors. Model on right shows condition 2 years 9 months after treatment was begun.

B, Front view showing original condition: note incisal relationship and buckling of lower incisors; and the case 2 years 9 months after treatment was begun.

the open bite condition persists, it is due to the tongue forcing itself into the space between the upper and lower incisors (*Figs. 5-7*); the monobloc, by preventing this, allows natural correction of the open bite. Patient co-operation and cessation of the habit are essential. Lip and tongue exercises are useful adjuncts to appliance therapy. These exercises

between the teeth. If the upper arch is not greatly contracted it is unnecessary to trim the plate in the molar region, but if it is and requires expansion the plate is trimmed accordingly.

e. Treatment of Case in which an Appliance would not be worn by Day.—In cases of superior protrusion where extraction of a

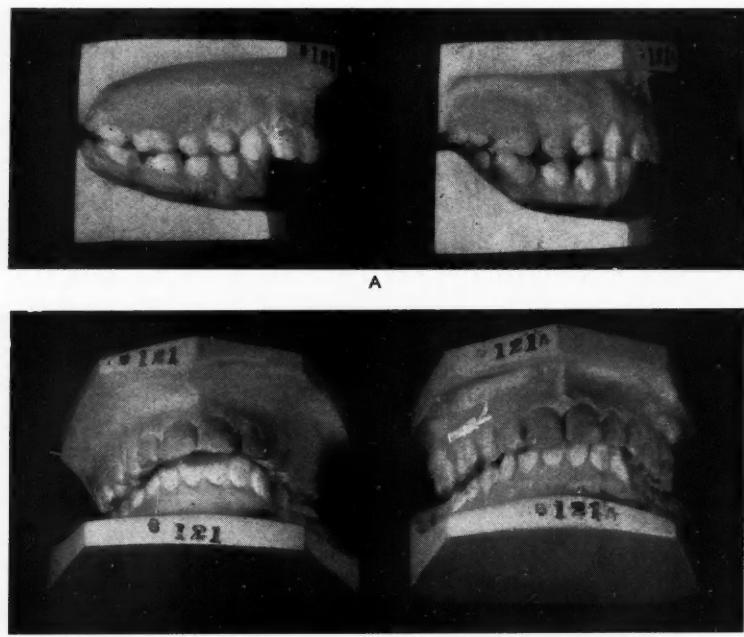


Fig. 8.—Case No. 121 F. Patient aged 15 years. Excessive overjet of incisors as a result of early extraction of lower first permanent molars. Treatment was extraction of upper first permanent molars and monobloc. A, Model on right shows result of treatment two years later. B, Front view of the condition before and after treatment.

are prescribed by a speech therapist. There are cases completely cured by such exercises.

In this type of case, if the arch relationship is normal, the bite is not taken with the lower arch advanced as it would be if there were post-normal occlusion. The trimming of the appliance is important and must be done in such a manner that the incisors are not prevented from elongating, the plate being cut well away from both upper and lower incisors; it then functions as an internal oral screen preventing the tongue protruding

molar or premolar on each side is necessary, this appliance has been used with success. It has also been successful in cases where $\overline{6}6$ have been extracted early with collapse of the lower arch, a deep overbite, and a secondary superior proclination. The best results are obtained by extraction of the first permanent upper molars and the fitting of a monobloc constructed as in (a) but trimmed free from the second permanent molars. (*Fig. 8*.)

f. Treatment of Lingual Tilting of Lower Incisors following Early Loss of Deciduous

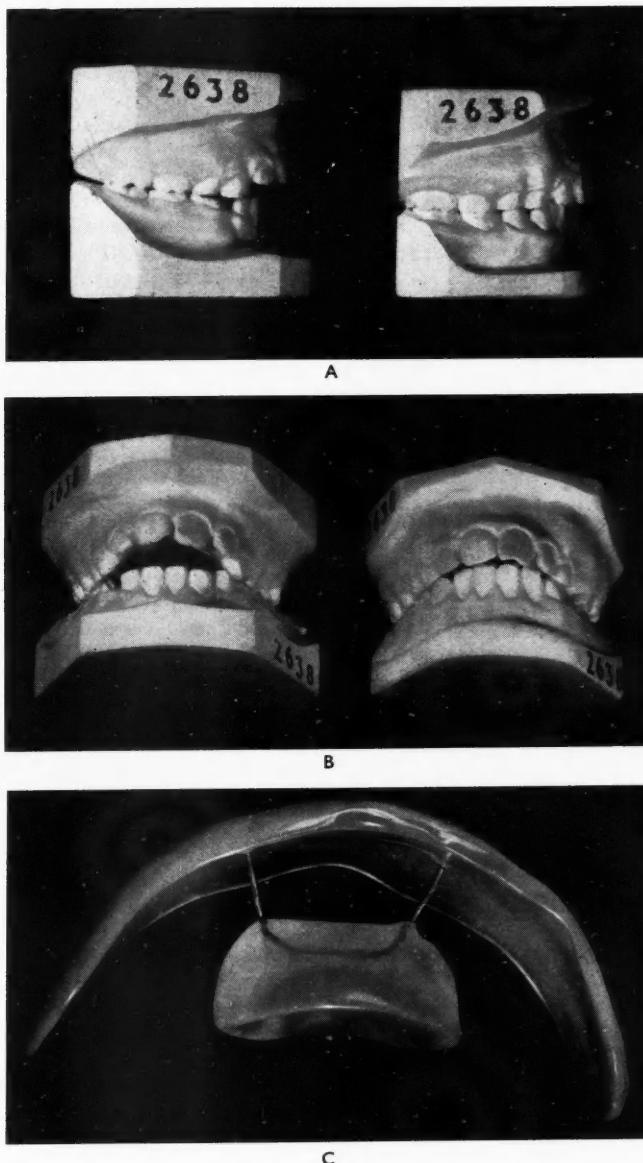


Fig. 9.—Case No. 2638 F. Patient aged 8 years: sucked thumb: habit ceased four months after first attendance. Double oral screen fitted; nine months later lingual section removed; occlusion normal eleven months after treatment begun.

A, Side view showing slight post-normal relationship which is corrected in model on right.

B, Front view showing open bite; on right corrected incisor relationship. C, Double oral screen.

Molars.—The monobloc can also be used where there has been lingual tilting of the lower incisors with increased overjet and overbite following early extraction of lower deciduous molars. In this case it is trimmed so that there is no forward or medial pull on the teeth distal to the spaces in the lower arch, that is to say the plate is trimmed free of the teeth distal to the spaces, generally 6-6; consequently all the force is applied to the teeth anterior to the space.

It can only be used when the loss of space has not been great and the premolars are about to erupt.

g. Retention.—The monobloc is useful as a retaining appliance for cases (e.g., post-normal occlusion) treated with fixed appliances. In such cases it is essential that the appliance fits around all the teeth and is trimmed only sufficiently to allow it into place.

2. THE ORAL SCREEN OR MOUTH SHIELD

The oral screen or mouth shield is used for the treatment of: (a) Post-normal occlusion; (b) Lip posture and habits; (c) Superior proclination; (d) Retention.

a. Treatment of Post-normal Occlusion.—The oral screen is a suitable appliance for the treatment of mild cases of post-normal occlusion where the upper and lower premolars occlude cusp to cusp mediiodistally and the overjet and overbite are excessive; it is less certain than the monobloc in treating these cases.

Construction of the Oral Screen.—Its greatest advantage over the monobloc is the simplicity of its construction. It is unnecessary to take a bite and the technician's time is reduced considerably. It is important that it is made to touch the upper central incisors only and that it does not come into contact with the lower incisors or gingivæ. It is built away from the cheek teeth so there is no fear of compressing them as the screen goes distally with the upper incisors. It also allows for some expansion by removing the pressure of the cheeks on the molars and premolars.

b. Treatment of Lip Posture and Habits.—The screen is also useful for correcting lip posture, mouth-breathing, and some habits.

If there is a tongue thrust it may be necessary to modify the screen by a lingual extension which will prevent the tongue pushing between the teeth. This type of screen is referred to as the double oral screen (Fig. 9). The two parts are joined by wires which pass between the teeth in the canine region. The lingual part is large enough to cover the opening between the upper and lower incisors.

c. Treatment of Superior Proclination.—Class I (Angle) cases with upper incisor proclination and a deep overbite may also be treated with the screen. The gentle pressure of the lips on the screen is sufficient to correct the position of the incisors, but results are not produced quickly.

d. Retention.—The oral screen is also useful as a retainer when other methods have been used to correct these conditions.

3. THE PROPULSOR

The propulsor is used in cases of post-normal occlusion with deep overbite and overjet which have been aggravated by early extraction of the lower deciduous molars and lingual tilting of the lower incisors. It is limited in its use. It has no advantage over the monobloc in the treatment of uncomplicated Angle Class II, Div. I cases, while it has the disadvantage of being easily broken; there is less control of individual teeth.

Construction of the Propulsor.—The appliance is difficult to process as it must be made in two stages. The bite is taken with the mandible advanced. It is activated in a similar manner to the monobloc. Additions are made periodically to the upper and lower incisor region by self-polymerizing acrylic which maintains the pressure on these teeth. To expand the lower arch sufficiently to fit the upper, it is often necessary to incorporate an expansion screw, and to prevent tilting pillars are made between the upper and lower wings.

BIBLIOGRAPHY

- CASELEY, R. (1947), "The Principles and Construction of the Oral Screen as a Functional Appliance", *Trans. B.S.S.O.*, 81.
- ENDICOTT, C. L., PEDLEY, V. G., and GROSSMANN, W. (1947), "Practical and Theoretical Observations on The Norwegian System", *Ibid.*, 31.
- WILSON, H. E. (1950), "The Progressor", *Ibid.*, 76.

A BRIEF OUTLINE OF THE EVOLUTION OF THE DENTITION

By G. E. RAY, F.D.S. R.C.S.

FEW instruments can have extended human knowledge as has the telescope. With its aid men have learned more about the Universe in the last ten generations than in the thousand that preceded them. Yet man is a mere newcomer to this aged planet, whose nebulous origin can be traced a thousand million years... to a time when it was still an incandescent globule hanging in the heavens.

The profuse varieties of dentitions (of which man's is an example) that now exist tell an absorbing story of the evolution of life on this planet. Palaeontological (fossil) studies indicate that life existed in simple bacterial and protozoan forms some *five hundred* million years ago. But it was not until the much later advent of the vertebrates that we find the first evidence of a true dentition.

WORMS

Already, in the worms and early chordates, there was evidence of an attempt to assist in the assimilation of food by the formation of keratinous denticles: but it required the development of an internal skeleton to provide the support necessary for a true dentition, and, as a result, it was not until the appearance of the early shark fishes of the Devonian era that the prototype of the modern dentition was first evolved. Indeed this primitive dentition can still be studied, with but minor changes, in some of the cartilaginous fishes of to-day.

FISHES

The first teeth consisted of modified outgrowths of the skin over the jaws, analogous to and homologous with similar structures covering the rest of the body. The jaws themselves, which originally arose as modified gill supports, were soon elaborated by a reduction of the first gill; the inclusion of the second gill supports produced a wide gape which assisted in the swallowing of food. These early teeth,

generally small spiny plates covered with enamel, were directed toward the gullet, thus assisting the passage of mobile particles; bound down to the jaws by fibrous bands,

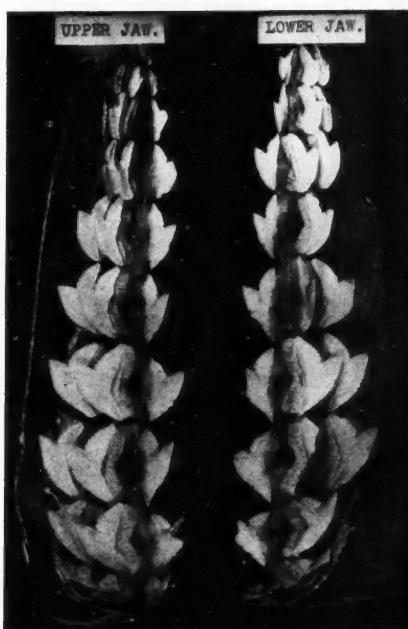


Fig. 1.—Jaws of a *white shark* dissected to show numerous similar teeth recurved toward the gullet. Note the relationship of the successional teeth and the specialized shape adapted to a carnivorous diet.

they were replaced by multiple successors as required (Fig. 1).

No sooner do fish records appear than their dentitions are seen to multiply in number and diversity, some creatures developing blunt teeth suitable for crushing (Fig. 2), whilst others show structures specially designed for straining water from the plankton on which they fed. Thus the basic dentition consists of numerous simple rapidly replaceable teeth,

formed of dentine, coursed by nutritional canals, and covered by primitive enamel. From these beginnings there occurred a progressive reduction in number and increase in specialization of the component parts. With these progressions two new structures eventually

which increased the strength and rigidity of the union; but it was not until much later that fish or reptile developed that combination of strength and resilience which characterizes the attachment predominant among the mammalia, the gomphosis.

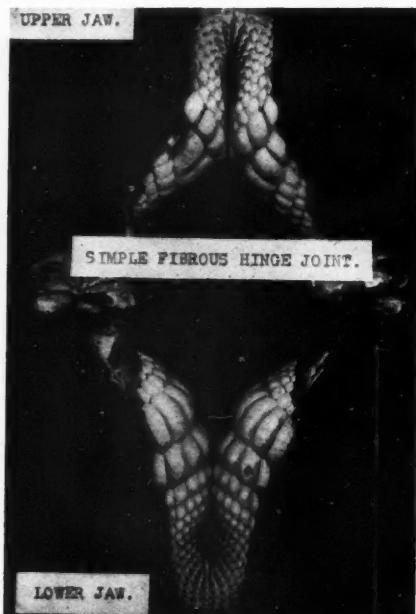


Fig. 2.—Jaws of a *Port Jackson* shark with specialized teeth for crushing, common among sea creatures adopting a bottom living habit. Note the enlarged teeth in the position of maximum mechanical efficiency.

developed, the alveolus and the intermaxillary joint, the former long preceding the latter. (The alveolus may be defined as that portion of the dentary which grows up to support the teeth in response to hereditary and environmental factors.)

The conflicting problems of strength and durability are well exemplified in the evolution of the tooth attachment. The initial fibrous arrangement was soon modified in numerous types by the elaboration of hinge joints directly seated on the jaws, and these in turn were superseded by ankylosis. A further alteration in the jaw itself led to the formation of a socket

AMPHIBIANS

Eventually certain animals emerged from the waters and attempted to adapt themselves to a terrestrial existence. At first they were amphibian creatures whose basic dentition had much in common with their fishy ancestors but later others arose capable of breeding and rearing their young on land. The rocks tell us a fascinating story of life in those days, but we must content ourselves with the knowledge that the world entered into an age ideally suited to the growth of reptilian types, which soon developed in eminence and immensity, one monstrosity leaving remains measuring no less than 100 ft. from tip to tail.

REPTILES

Several characteristics predominate among the reptiles. In most cases their multisuccessional teeth, socketed for extra stability, are attached by ankylosis. Some retain the elaborate jaw mechanism preserving the wide gape, but the majority progressively reduced the jaw components so as to bring the tooth-bearing portions into closer proximity. Perforations in the upper jaw (the primitive nares) permit breathing without the necessity of opening the mouth. The jaw hinge relationship is elaborated by the development of a fossa in the lower jaw and a condyle on the upper (Figs. 3, 4). Lastly the number of teeth are reduced and they are more robust in structure. In some cases they are specialized in shape and action, as illustrated by the poison fangs of the snakes.

Owing to the fact that these animals carried their heads near to the ground, they opened their mouths by elevating the upper jaw. Indeed the post-vertebral muscles, by which this movement is effected, are still accessory muscles of mastication in man to-day. A further major advance lay in the development of the post-orbital foramen, thus allowing

an enormous increase in the surface origin available for muscular attachment. Two muscles, one passing through the foramen and the other attached to the outer rim, are the precursors of the temporalis and masseter, and with their aid modern man can exert a biting force of 80 lb. per sq. in.

Palaeontologic records of the periods which led to the predominance of the creatures which we have been discussing suddenly diminish,

As a result of severe local conditions they developed far superior brain power, vastly increased powers of locomotion, and highly specialized dentitions. Indeed the mammals are the only creatures to masticate their food.

Despite their diversity there are certain features common to most of the mammalia. They no longer have a continuous succession of multiple teeth; in general they develop two sets only. The lower jaw, rotating on the

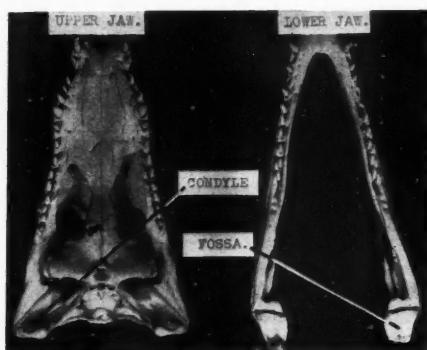


Fig. 3.—Jaws of a crocodile. These animals are exceptional in having developed a gomphosed attachment and in the enlargement of the fourth and eleventh teeth. Note the typical simple teeth and the arrangement of the joint. Compare this with that in Fig. 4.

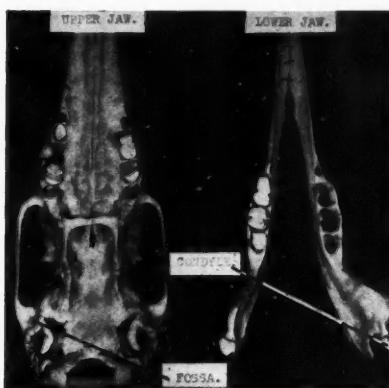


Fig. 4.—Jaws of an edentate, the *aardvark*. Despite the suppression of the teeth and the absence of enamel, an extremely unusual condition, there is the typical mammalian joint arrangement.

and we are left to assume that some vast geologic change or climatic alteration wrote *finis* to the majority of the terrestrial inhabitants of the globe. Only after a lapse of thousands of years do the rock strata again display new remains; but these are greatly altered in character. The small mammals, which previously could only develop on the fringes of the habitable surface of the earth, are now pre-eminent, and have grown apace both in number and variety.

MAMMALS

The mammals are warm-blooded creatures capable of maintaining a constant internal *milieu* and are thus able to exist under widely differing external conditions. With two exceptions (to-day) they are viviparous, rearing their young in close intimacy and tradition.

upper, now opens downwards, a reversal of the arrangements previously noted in the reptiles. The mouth is separated from the nose by an extension of the primitive palate and from the gullet by the apposition of the tongue and fauces. This fact, together with the greater specialization of the teeth, enables food to be triturated to a much greater extent than was previously possible (Fig. 5).

As might be expected, the increased development of brain power resulted in the use of teeth for purposes other than mastication (Fig. 6), although it is interesting to note in this respect that in those animals which use their hands the dentition retains many of the simpler basic characters. The major changes are twofold: firstly, the development of teeth differing in form and function within the same animal; and, secondly, a greatly advanced

method of attachment. The teeth can now be split into three groups . . . the incisors, basically small and conical; the canines, large,



Fig. 5.—Few of the living mammals preserve dentitions which have not become highly specialized to their dietary habits. The *leopard* is typical of an animal adopting carnivorous habits. The incisors retain primitive characteristics, but the canines and cheek teeth are highly specialized and the dentition as a whole presents a typical heterodont arrangement.

conical, and curved; and the cheek teeth, multi-rooted and multi-tuberculate. The socketed attachment, already highly developed in the reptiles, is now modified by the development of a fibrous sling, well innervated to convey information of excessive strain.

ENVOI

Clearly there can be no distinct modern dentition, for even in the human species certain

well-defined dental differences are manifest. No doubt the ever-surfing forces of evolution will, in their own good time, recast and



Fig. 6.—The wild pig *Sus barbirusa* gives us a good example of teeth specialized for purposes other than feeding, the lower canines being well developed for rooting and digging. An interesting feature is the overdevelopment of the upper canines, an excessive evolutionary development which now serves little useful purpose and may well prove a curse to the pig.

remodify the present mammalian arrangement; and perhaps æons hence others will follow the onward march of the modern dentition from the stage that it has reached to-day.

My grateful thanks are due to the Curator of the Museum, and the Department of Photography of the Royal Dental Hospital of London School of Dental Surgery.

MANAGEMENT OF THE PERIODONTAL ABSCESS

TEN cases in which lateral periodontal abscesses have been treated by means other than tooth extraction are reported. All are illustrated and brief histories of three are presented. Treatment is varied between sub-gingival curettage, apparently not at open operation, and by gingivectomy, whilst in one case where osteomyelitis was present treatment was by wide incision for drainage and systemic antibiotic therapy. It is recommended that in all cases the abscesses should

be converted into a chronic condition before any conservative type of surgical treatment is attempted. It is stated that the management of a periodontal abscess is dependent upon the location of the lesion, its accessibility, the ability to correct the local environmental factors producing the abscess, and the general health of the patient. The prognosis for teeth involved in periodontal abscesses is held to be favourable.—PRICHARD, J. F. (1953), *Oral Surg.*, 6, 474.

AN ANALYSIS OF MISCELLANEOUS DENTAL MATERIALS

By E. A. SCHOOLDEN

In the early days of resin denture base materials we heard much more about plasticizers than we do to-day. A plasticizer has the effect of lowering the softening point of a denture resin which in itself is obviously a thing to be avoided. Methyl methacrylate is the hardest of all the acrylic resins, but its B. H. N. (which is about 30) would be much lower if any but a tiny amount of one of these chemicals were included in the manufacturing processes. As far as we are aware, none is used in the polymers in use to-day for denture moulding.

A plasticizer is really an adulterant, having a solvent action upon the particular resin with which it is incorporated. When a denture resin was supplied in a blank or cylinder of material and had to be moulded by heat and pressure, the plasticizer content was highly desirable, in order to lubricate the molecular chains. This was done to assist the flow of the mass of material into the innermost recesses of the mould and the teeth anchorages.

The present-day powder/liquid method of obtaining a plastic condition makes their use rarely necessary, except where a softer prosthesis is required. A soft resin for this purpose can be processed from polyvinyl-chloride which is retailed to the profession as a white powder under the name of Corvic S.U. The solvent, or plasticizer, is usually dibutyl phthalate, an ester of phthalic acid $C_6H_4(COOH)_2$ which has three isomers—ortho, meta, and para—and which are di-substitution derivatives of benzene. These three acids are isomeric dicarboxybenzenes. Orthophthalic acid is normally used in producing the butyl ester. The acid is dibasic in that it contains two replaceable hydrogen atoms in the carboxyl group, therefore two molecules of butyl alcohol are needed for every one molecule of acid in the esterification which is shown thus:—



This substance, which is a colourless liquid at normal temperatures, has been found useful as a vehicle for P.V.C. when making gum-shields, obturators, and lower dentures requiring a soft lining as well as for facial restorations. Suitable pigments are usually added to the solvent, and the mix gels at a somewhat higher temperature than that at which acrylic resin is cured.

Corvic powder is a polymer of vinyl chloride, $CH_2=CHCl$, a gas produced by the interaction of two other gases, hydrochloric acid from sulphuric acid and salt, and acetylene from calcium carbide and water. A soft prosthesis is not a polymerization product, but is akin to a gel which increases in viscosity with increase of time and temperature. Unless a little methyl methacrylate monomer is allowed to penetrate this gel, a good union to an acrylic resin base cannot be assured.

Activated Resins.—Acrylic monomer is often supplied in dark-coloured bottles and a small quantity of inhibitor included in the solution to prevent the possibility of self-polymerization during storage caused by light and oxygen. The inhibitor is a de-oxidant or reducing agent such as hydroquinone, $C_6H_4(OH)_2$. A very small amount is present, however, otherwise it would have the effect of cancelling out the value of the catalyst, benzoyl peroxide. This oxidizing agent would thus be reduced and the hydroquinone oxidized to quinone, $C_6H_4O_2$, which crystallizes into yellow needles. The pink colouring of a resin would therefore be darkened, giving an unesthetic appearance. In the auto-polymerizing acrylic monomers it cannot be used unless a different type of catalyst is incorporated.

An inhibitor is sometimes used as an anti-checking solution around the pins of porcelain teeth just prior to packing. It has the effect of retarding polymerization in these areas,

so that a cushion of softer material is provided when the greater mass of acrylic hardens and contracts. This prevents the possibility of cracking across the pins due to stresses set up by the contraction.

Standard methyl methacrylate powders are manufactured by a process known as emulsion polymerization, whereby monomer is heated in water with benzoyl peroxide as catalyst to initiate and speed up the rate of reaction. This compound is rich in oxygen as shown by its formula: $C_6H_4\cdot CO\cdot O\cdot O\cdot CO\cdot C_6H_4$. The oxygen atoms are but loosely held, and their presence increases the mass energy required to complete a molecular change. In the case of acrylic resin, the growth of small molecules into long chain aggregates takes place more rapidly. Other forms of energy which have a similar accelerating effect are light and heat. Light cannot be admitted to the inside of a plaster mould, held in a metal flask, and an elevated temperature has a disadvantage in that the rise must be gradual. Volumetric changes also take place due to varying coefficients of expansion and contraction which result in strain.

By the use of activators or chemical accelerators these difficulties may be avoided. An accelerator of this type was first used in a German product, Palapont S.H., and was the starting-point of the self-hardening acrylics. The chemical compound which brought about this rapid cure was normal trihexylamine, $(C_6H_{13})_3N$. This formula shows it to be an aliphatic tertiary amine. Aromatic amines have since been used for this purpose such as dimethyl toluidine, $C_6H_4(CH_3)_2N$. Unfortunately, these compounds form decomposition products by interaction with the nascent oxygen provided by the peroxide content of the resin polymer. In the case of the dimethyl toluidine activator, oxidation gives a residue of amino-anhydroxybenzoic acid, and the products of decomposition discolour the delicate shade of the material, whereby colour harmony is destroyed (McLean and Kramer, 1952).

Another type of activator now in use is lauryl mercaptan, $C_{11}H_{23}SH$, in which the nitrogen of the amines is replaced by sulphur (Dental Fillings Ltd., 1953).

Sulphurous acid, H_2SO_3 , is also said to have a catalytic effect due to the presence of the sulphinic group (SO_2). Research carried out by the Amalgamated Dental Company, state these workers, has resulted in the discovery of a derivative containing this group and giving none of the adverse reactions previously referred to.

This accelerator, paratoluene sulphinic acid, $CH_3\cdot C_6H_4\cdot SO_2\cdot H$, is claimed to cure methyl methacrylate more rapidly at 20° C. than at 60° C. with benzoyl peroxide catalyst, and is the activating agent in the company's acrylic-filling polymerization product "Sevriton".

Oils, Fats, and Waxes.—The sulphinic group is closely related to the sulphonate group (SO_3^-), derived from sulphuric acid, H_2SO_4 , or put another way, $OH\cdot SO_3\cdot H$. Sulphonation of certain oils gives them an affinity for water. It is well known that oil and water are not very compatible. Anything of an oily, greasy, or waxy nature is repellent to an aqueous vehicle which is caused by interfacial tension, i.e., both faces carry similar electrical charges, and therefore tend to repel each other. Sulphonation of castor oil (Turkey Red) has the effect of changing the sign of these charges thus making them opposite to those of water molecules, with the result that the latter liquid is now attracted to the oily substance.

Wetting agents behave in a similar manner. They are generally liquids with long molecules called quaternary ammonium compounds. One end of each molecule contains a radical of opposite polarity to the other, hence two incompatible surfaces such as wax and water are linked together and interfacial tension is reduced. Modern detergents such as Quix and Tepol, as well as Drene and Cetavlon cetrimide, are examples of liquids exhibiting this quality. They may serve a useful purpose in the dental laboratory as well as in the kitchen, because, unlike soap (which collects dirt particles by a process of deflocculation) they do not leave an emulsified precipitate or "scum".

Fats and waxes are derived from the higher hydrocarbons of the "paraffin" series. Oxidation of a paraffin of high molecular weight gives a corresponding "fatty" acid. Theoretically, stearic acid, $C_{17}H_{35}COOH$, is derived

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from octodecane, $C_{18}H_{38}$. Esterification of stearic acid with the trihydric alcohol, glycerol, $C_3H_5(OH)_3$, gives glyceryl tristearate (stearin). Hydrolysis of this ester with a caustic alkali such as sodium hydroxide results in *saponification*. Glycerol is re-formed and the solid layer which floats on top after "salting-out" is soap (sodium stearate), which in solution is a useful separator for plaster. Because of double decomposition, calcium stearate is formed which fills the pores of the plaster.

In commerce, tristearin is also obtained from waste beef and mutton fat, whilst olive, rape-seed, coconut, and castor oils are used by soap manufacturers. Glycerol (glycerin) is a helpful medium when polishing with pumice. It both holds the abrasive to the appliance being polished and prevents dust from flying.

Soap solution is an excellent separating medium, as also is "soapstone", but the two are very different chemically. Soapstone, steatite, french chalk, and talc are all soft, flaky minerals found in metamorphic rocks, and are hydrated magnesium silicates of approximate composition $Mg_3Si_4O_{10}(OH)_2$.

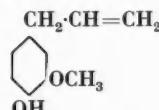
Natural wax, much of which is produced by sperm whales, is like ordinary soap, an ester. Spermaceti is largely the ester of cetyl alcohol and palmitic acid. Dental waxes, with the exception of beeswax (myricyl palmitate) are in the main produced from petroleum, shale oil, or Ozokerite. This mineral after refinement is sold as *ceresin* and constitutes a small percentage of modelling and inlay waxes.

The production of inlay wax must be very carefully controlled to conform to a rigorous specification standard. This type of wax often contains carnauba wax which is of vegetable origin. It is collected as an exudate from the leaves of the Brazilian wax-palm tree. Carnauba wax is also a constituent of many impression compounds along with resins, fillers, colouring and flavouring essence. The resinous substance Gum Dammar forms a large percentage of "sticky-wax". Colouring matter in waxes and impression materials consists chiefly of carmine or cochineal (from dried insects found on Mexican vegetation), carbon-black, and aniline dye-stuffs.

A common wax-solvent is acetone, which will also dissolve acrylic resin polymer to make a useful varnish. As its name implies this highly volatile and inflammable liquid is a ketone. Derived from secondary propyl alcohol (dimethyl carbinol) its chemical name is dimethyl ketone, $CH_3-CO-CH_3$, and it is one of the raw materials used in the manufacture of methyl methacrylate, because of its ability to form a cyanhydrin with prussic acid, HCN. It should therefore not be allowed to come into contact with certain acrylic teeth or crazing of their surfaces may occur, due to its solvent action.

Acetone is produced commercially from starch, or it may be prepared in the laboratory by the distillation of calcium acetate, $(CH_3COO)_2Ca$. Commercial wax-solvents sometimes contain diethyl ether, $(C_2H_5)_2O$. This is one of the most inflammable substances known and should never be used with an open flame in the same room as it forms an explosive mixture in air.

Impression Pastes.—Previously supplied as a white powder (zinc oxide and crushed resin) and a liquid (oil of cloves with Canada and Puruvian balsam) under such names as Olodent and Kelly's Paste, these products are more commonly sold as red and white pastes put up in collapsible tubes. The red paste contains eugenol, an aromatic alcohol distilled from cloves, or separated from clove oil, which contains 82 per cent of the alcohol, by potassium hydroxide. Union of the two pastes results in a mixture which hardens in a few minutes. The setting time is more reliable in this method of packing in that there is no absorption of moisture from the air as was possible with the powder/liquid method. Shelf life is not very good due to loss of eugenol by evaporation. As will be evident from its formula



eugenol is a phenol derivative. It should not be allowed to come into intimate contact with the polished surfaces of a resin denture,

or again, crazing may occur. A reducing agent, it acts as an inhibitor of polymerization.

Summary.—The chemistry of some of the minor, though none the less important, laboratory materials is analysed, and their physical effects discussed. Synthetic resin addition agents such as plasticizers, activators, inhibitors, and catalysts are covered as also are detergents and separating media. Waxes,

impression compounds, and pastes with their solvents are described.

REFERENCES

DENTAL FILLINGS LIMITED (1953), personal communication.
MCLEAN, J. W., and KRAMER, I. R. H. (1952), "A Clinical and Pathological Evaluation of a Sulphuric Acid Activated Resin for use in Restorative Dentistry", *Brit. Dent. J.*, **93**, 255.

ABSTRACTS from Other Journals

Eosinophilic Granuloma

Under the article *The Xanthomatoses*, the author describes a series of cases of eosinophilic granulomas. One of the cases, a boy aged three years, was under treatment and during that period he developed a toothache in the lower premolar. The tooth was loose and there were some granulations on the jaw. The tooth was extracted, and a section of the granulations showed a typical eosinophilic granuloma. It is pointed out that this disease process is of extreme variability.

Eosinophilic granuloma and Hand-Schüller-Christian syndrome do seem to be associated, if not actually the same disease process. It may start in a single or multiple form, it may be localized or generalized, it may resolve on its own accord, it may respond with healing and restitution to normality following surgical or radiotherapeutic treatment. If it does not respond to treatment at all, new foci appear, and relentlessly but slowly the victim is killed. Early diagnosis is difficult, histological interpretation is also difficult and confusion usually arises between eosinophilic granuloma and lymphadenoma. This may be made still more difficult by a primary origin which may be in soft tissues or in lymph-nodes.—WILLIAMS, I. G. (1953), *J. Fac. Radiol., London*, **4**, 235.

Time of Eruption of Permanent Teeth

The mean times of eruption of human teeth have been computed from a number of observations on 1427 boys and 1365 girls aged between 5 and 15 years. The following observations have been made:—

1. That the time of the eruption of the teeth of children who are either of a superior socio-economic group or are pubescent tends to be earlier than in other children.

2. That the corresponding right and left teeth do not differ significantly in either the upper or the lower jaws.

3. In boys, eruptions are later than in girls, with the exception of the upper first molar teeth.

4. The mean times of eruption of teeth in the upper jaw are later than those in the lower jaw, except for the first and second premolar teeth, which are earlier, and the first molar teeth, which do not differ significantly.

5. The order of the eruption of the teeth is the same as that found in other stocks of European origin.

6. The mean eruption times of teeth are, with a few exceptions, a few months earlier than normal in each sex.—CLEMENTS, E. M. B., DAVIES-THOMAS, E., and PICKETT, KATHLEEN G. (1953), *Brit. med. J.*, **1**, 1421.

INSTITUTE OF BRITISH SURGICAL TECHNICIANS (INC.)

A Lecture will be given by Mr. J. H. Lee, D.D.S., L.D.S. R.C.S., on "Immediate Full Dentures" under the auspices of the Institute of British Surgical Technicians (Dental Section) on Tuesday, November 24, at 6.30 p.m., at the Eastman Dental Hospital, Gray's Inn Road, W.C.1.

Admission tickets from the Institute of British Surgical Technicians, 6, Holborn Viaduct, London, E.C.1., or through members.

THE PROCEEDINGS OF THE BRITISH SOCIETY OF PERIODONTOLOGY

President: A. FRANK STAMMERS, M.D.S.

Hon. Secretary: H. THOMSON, L.D.S. R.F.P.S. Glasg., H.D.D. R.C.S. Edin.
53, Portland Place, London, W.1.

Vol. IV, No. 1

November, 1953

PRESIDENTIAL ADDRESS

(Delivered at the commencement of the Fifth Session, October, 1953)

LADIES AND GENTLEMEN,

I regard it as a very great honour that I stand here before you this afternoon as your new President, especially as my four predecessors have all been distinguished London men and now I am the first to represent the Provinces in the Presidential chair. I thank you most sincerely for the confidence you have placed in me, and I hope we have a very useful and interesting year in front of us. I shall certainly do my best to further the interests of the Society.

Ours is a new society, a young society; we came into being because the time was ripe for the formation in this country of a society of specialists in periodontology. The study of the supporting tissues of the teeth in health and disease is by no means new; the problem of pyorrhoea has puzzled and provoked dentists for many years; and from time to time various theories regarding its aetiology have been put forward, and startling results have been claimed for different methods of treatment. However, it was not until Dr. E. W. Fish carried out his work on the subject in the early thirties, and presented his ideas to the profession in his own particular and inimitable way, that periodontology was really considered seriously in this country. Widespread interest was aroused, hope was fostered that the seemingly inevitable clearances were not really necessary, and a certain number of individuals began to concern themselves specially with the disease. One or two of the Dental Schools started Departments of Periodontology, and in these schools particularly, but not in these

alone, students were taught to attach a greater importance to the supporting structures than had been done in the past. No longer was dental training only a matter of filling, regulating, and extracting teeth, and their replacement by artificial substitutes; although greatest emphasis was, alas, still placed on these aspects of our work and periodontology remained the Cinderella.

The war years focused our attention on the soft tissues of the mouth because of the greatly increased incidence of acute ulcerative gingivitis amongst members of both the armed services and the civil population. Those periodontal departments that were in existence worked overtime, and individual dentists received special courses of instruction in treating the disease. Therefore, with the vast post-war expansion of our teaching schools it was only fitting that periodontology should come to the fore with the establishment of special departments in the subject in all the schools; some went even further and linked their department of periodontology with a lectureship in preventive dentistry, thus giving recognition to the close tie that exists between our specialty and the prevention of loss of the natural dentition. And so there is to-day a number of men who devote all their time, or a large part of it, to practising and to teaching periodontology. And there are also many more in general practice who have become more aware of the supporting tissues and consequently keener on their preservation. Those who have common interests naturally desire to meet and share their ideas and

experiences, and so the British Society of Periodontology was born and is now a flourishing five-year-old.

I think it can be said with truth that up to date it has well justified its existence and has in the words of our Constitution, "promoted and advanced the study of periodontology". Indeed, this has been well exemplified at Buxton this summer, where the main theme of the Annual Meeting of the B.D.A. was periodontology, and our society was asked to supply the speakers. All those present were agreed on the success of the meeting and the excellence of the papers, but I did hear one note of criticism. It was the query whether the profession was becoming too specialized; was dentistry being split up into too many groups of enthusiasts in one particular subject? Was there a danger of our losing sight of the idea of first treating the patient as a whole, then the mouth as a whole, and finally the separate parts of the mouth? It is a criticism which I think deserves serious consideration. We have seen whence, and how, and why we came into being as a specialist body. Where do we stand now, and where are we heading, or being led?

The cult of specialization is very widespread to-day and has invaded all walks of life; without doubt it does tend to restrict the outlook and narrow the horizon of the too devout worshipper. Dentistry itself is merely a specialized branch of medicine—should it be further subdivided into smaller specialties? We see a picture of extreme dental specialization in America, where there are not only periodontists, exodontists, orthodontists, and various other forms of "odontist", but also where men spend their whole time and energies on one particular job, such as the gold-inlay expert, the crown or the bridge expert, and so on. Personally I think such extreme subdivision is to be deprecated. Fortunately the set-up of dentistry and the demands of the public in this country are such that there is little foreseeable likelihood of the same thing happening here. In the September 1st issue of the *British Dental Journal* there is an editorial comment on the formation of a Society of Prosthetic Dentistry

which gives the same British view. It says: "As the scope of each aspect of dentistry becomes enlarged there is a tendency to form a society devoted to its study. It would be disadvantageous to divide dentistry into circumscribed specialities, for the basis of dental practice is general practice and this must always be so if balance is to be kept, but many advantages may be gained by the formation of societies for the study of different branches of our work, and among them may be counted the interest and enthusiasm which are aroused and the fact that many practitioners are enabled to improve their service to the public by the wider view such a society brings to its members." I would underline one phrase in that quotation, "*the basis of dental practice is general practice and this must always be so if balance is to be kept*". This is a fundamental truth which we must constantly keep before us. We older men have little difficulty in doing so because for most of us the basis of our professional lives has been general practice, and our enthusiasm for special aspects of our work has of necessity been kept in proper perspective. The part has not had the chance of obscuring the whole. However, in these days of opportunity of engaging in a satisfying whole-time academic career there is the temptation for a young man to concentrate so much on that branch of dentistry with which his appointment is concerned that he is in danger of losing that sense of perspective. If he were to lose it his influence on his students could be definitely harmful.

Fortunately for us, our specialty is so intimately connected with all other branches of dentistry that there is little chance of our becoming shut up in a watertight compartment. We simply seek to emphasize the relative importance of the attachment apparatus of the teeth in the dentition as a whole. In fact, if we could only pursue the objects of this society with complete success, in course of time all dentists would be periodontists and the necessity for our distinctive label would have ceased to be. That is the ideal—an ideal which, alas, is still far from attainment. Nevertheless, I believe that it will be attained—I doubt if any of us here present will live

to see it—that the time *will* come when the dental profession as a whole will be so periodontal minded that advanced disease of the supporting tissues of the teeth will become comparatively rare amongst that section of the public which has been educated to seek regular dental inspection. I also believe that the time will come when the Government of the day will be so enlightened that it will harness and unite all the forces of film, radio, and television in one huge propaganda drive for better dental health. The dental profession must take its share in that education—it should be doing it now—however discouraging the modern conditions of general dental practice may be. Unfortunately, too many practitioners seem to have lost their faith; they are frustrated and they are apathetic; they fill teeth, they scale them—or what is called scaling—and then later they extract them and they replace them, all as jobs to be done. It all seems so futile, particularly so when really beautiful conservation work is done on the teeth and at the same time early periodontal disease is neglected and its causes unobserved or ignored. Education is the answer—education first of the profession and then by the profession of the public.

But teaching without conviction and without enthusiasm is a poor thing, doomed from the start to arouse little or no vital response. Therefore let us see to it that we collectively as a learned society, and individually as teachers and practitioners, spread the gospel with such complete conviction that our enthusiasm will be fully contagious.

Our main educational task is to show conclusively that not only can quite advanced periodontal lesions be treated successfully and the affected teeth retained for many years longer, but, what is more important, that if correct prophylaxis is carried out and early remedial treatment given, the disease can be kept at bay. But we all get our moments of doubt, especially those of us who have been in practice for a number of years, and I suppose most of us have thought at times, "Is it really worth it? Why spend half-an-hour trying to persuade someone that it is better to keep their teeth when they want to have

them all out and a full set fitted? Why bother to explain to mother that unless Mary does her exercises to correct her thumb-sucking and her 'open lips' habit she will grow up with her teeth going round corners in front of her? Why not just do the fillings and leave someone else to cope with the deformity later on?" And then perhaps the next patient is one who is forever grateful for similar advice given years before, and a sense of proportion and sanity returns. Yet one does need encouragement when the only true test of the success of a technique, the value of a course of treatment, the soundness of one's advice, is to see favourable long-term results. Two years ago I thought it might be instructive and helpful if I analysed the record charts of my patients and found out what really had happened in the course of years. Fortunately I keep very detailed records which give quite accurate histories of the dental condition of my patients.

A series of 400 cases, all of which had been patients for a minimum of ten years, were therefore analysed and the findings tabulated. Quite obviously a statistician would consider these numbers negligible and the results of no value, but to me personally they offer encouragement. I bring them to you for what they are worth in the hope that you, and particularly the younger people present, may also find encouragement and a conviction that a conservative and preventive practice is well worth while and is very satisfying.

The 400 cases are not specially selected. I have been in practice for thirty years, so that at the time of the survey the charts of the first 400 patients, in alphabetical order, who had received treatment for between ten and twenty-seven years were the ones examined. The only rejection of cases that was made was of patients who were fitted with full or nearly full dentures at the first series of visits and thus were clearly of no significance in the investigation. No patients who had been attending for less than ten years were included in the list and thus none of those referred by other practitioners for specialist periodontal treatment were included. Neither were any cases from the Periodontal

Department of the Birmingham Dental Hospital included because detailed records are not retained longer than six years owing to lack of storage space. In any case the majority of hospital patients are examined by, and receive treatment from, different members of the staff at different times, and thus the continuity of personal interest and assessment of the prevailing conditions in the mouth is broken. For the findings to have any value at all, the same person must have known, worked on, and recorded the conditions which have been present in a mouth from time to time throughout the years.

As you see in *Table I*, the total of 400 is composed of 142 males (35.5 per cent) and 258 females (64.5 per cent), roughly one-third men and two-thirds women. No definite ages

resumed regular attendance, they have been included. Some of these received treatment elsewhere, of which there is no record; others had none during that period and in consequence had to lose some teeth when they returned to the practice. Had it not been for the war-time absence of these patients the total of teeth lost by the group would undoubtedly have been still less than that recorded.

The number of patients in Group 1 (248) is 62 per cent of the total and does give some indication of the value of the training they have received and the degree of success that has been achieved in making them "mouth-proud".

Group 2, "Irregular and indifferent", contains those patients who have attended at

Group

	Total number	400	142 males = 35.5 per cent
1	Regular and co-operative ..	248	258 females = 64.5 per cent 87 males = 35.1 per cent 161 females = 64.9 per cent } = 62 per cent of total
2	Irregular and indifferent ..	89	33 males = 37 per cent 56 females = 63 per cent } = 22.25 per cent of total
3	Neglectful	63	22 males = 34.9 per cent 41 females = 65.1 per cent } = 15.75 per cent of total
	Children when first seen ..	81	38 males 43 females

Table I

are available; 81 (20.25 per cent) were children when first seen, that is, they had not reached the age of puberty, and in consequence they have all been under observation during adolescence and are now young adults; of the remainder, the majority were young adults when first seen and are now middle-aged; the others were middle-aged and are now elderly. They are divided into three groups, and this division was arrived at not only from the written records of attendance and the various remarks and comments made from time to time, but also from personal knowledge over the years of the individuals themselves and their habits.

Group 1, "Regular and co-operative", comprises those patients who have made regular visits for inspection and necessary treatment, and who have tried to carry out instructions regarding home treatment. Quite a number in this group did not attend for two or three years because of war service, but having

irregular intervals, sometimes missing two or three years, then attending every six months for a year or two, then another lapse, and so on. Their records show that basically they were keen to retain their teeth, but they easily relapsed into temporary neglect, followed by a renewed outburst of cleansing zeal. The number in this group (89) forms 22.25 per cent of the total.

Group 3, "Neglectful", consists of 63 patients (15.75 per cent of the total). These are the lazy and dirty patients with whom all practitioners are familiar. Many only attended at irregular intervals, while others attended fairly regularly but failed completely to co-operate with home prophylaxis, and seemed to expect an occasional dental visit to be sufficient to keep the mouth healthy.

It will be seen that the ratio of males to females remains approximately the same, 1 to 2, in all groups. This is rather surprising and shows how the impressions that one forms

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unsupported by actual figures may be false. Because more women seek dental treatment than men, I had always thought of them as being far more co-operative and regular in attendance also, and therefore I should have expected to find a much greater proportion of women in Group 1, and of men in Group 3; whereas these figures show that those men who are interested in their mouths are evidently prepared to co-operate just as much as women.

One fact which is not disclosed by figures but which emerged during this survey is rather shattering. It is that Group 3 contains many, of both sexes, of the wealthiest and so-called "best" patients of the practice, whereas Group 1 consists mainly of industrious and respectable members of the lower middle class.

group, ranging from a minimum of 10 to a maximum of 26 years. The average is shown in column 4. In column 5 is shown the total "series of visits" made by all in the group. In some "series of visits" perhaps only one visit was made—say for scaling; in others perhaps two or three visits; in others there were many visits. Where a patient was under more or less constant supervision, as for instance in orthodontic cases, the visits have been counted as two "series of visits" a year. Column 6 gives the average.

Now if the average number of years is divided by the average number of "series of visits" it will be seen that each patient in Group 1 made one series of visits, on average, every ten months over an average period of nearly 16 years. Each patient in Group 2

Table II.—ATTENDANCES

Group	Number	Years	Average per Person	Series of Visits	Average per Person
1	248	3949	15.9 years	4590	18.54
		(Each person made 1 series of visits every 10-23 months)			
2	89	1520	17.08 years	758	8.5
		(Each person made 1 series of visits every 24-1 months)			
3	63	1057	16.67 years	696	11.05
		(Each person made 1 series of visits every 18-24 months)			

The tragic feature of this social phenomenon is, of course, that the children of wealthy Group 3 parents do not receive that essential parental example and encouragement to take care of their mouths which is so necessary to ensure full success for preventive training. In addition these children are nearly always educated at boarding, preparatory, and public schools where supervision of dental hygiene is, to say the best of it, somewhat lax. The time available during school holidays is frequently quite inadequate to deal with existing dental disease, let alone to carry out a proper course of instruction in oral prophylaxis; i.e., not only demonstrating the proper method, but also following up with repeated visits to check up the results obtained, and if necessary to reconstruct.

The attendance of patients is set out in Table II. Column 1 gives the group, column 2 the number of patients in that group. Column 3 gives the aggregate number of years during which attendance was made by all in the

only averaged one series of visits every two years over a period of 17 years, and each in Group 3 averaged one series of visits every eighteen months for 16½ years.

The difference is considerable and although averages cannot tell the whole story they do give an indication of the value the different groups of patients place upon dental advice and treatment. The "neglectful" Group 3 patients actually attended more frequently than the "indifferent" Group 2 patients, but unfortunately they expect too much of the treatment and take too little notice of the advice.

I think the feature of importance in this survey is the relative condition of the mouth after regular, or irregular, attention after a period of years. To what extent has dental disease been successfully resisted? The only test can be the number of teeth lost during the period, if that be taken in conjunction with the operator's attitude to the value of the natural dentition. In common with many of

my fellow practitioners, and I imagine with everyone in this room, I believe that the natural dentition, if healthy, is vastly superior to any artificial substitute, however perfectly fabricated. I therefore endeavour to retain all natural teeth which are vital, and some which are non-vital, providing they are clinically and radiographically healthy, if also their supporting structures are, or can be rendered, healthy. The exception is when the loss of a

less disastrous than the loss of a tooth from disease. Therefore the two columns "Crowding" and "Third molars" have been bracketed, and so have "Caries" and "Periodontal". Close study of these tables reveals some very interesting facts.

Table III A. shows the tooth loss of the "Co-operative" patients of Group 1. Those "without dentures" (181) include the younger patients, and therefore all but one of the teeth

Number		Extractions			
With Dentures	Without Dentures	Total	Crowding	Molars	Caries
	181	158 0.87	116 0.64	125 0.7	19 0.1
Per person			1.51		0.8
Total loss per person without dentures: 2.31					
67		1 0.01	43 0.62	169 2.52	10 0.1
Per person			0.63		2.62
Total loss per person with dentures: 3.25					
	248	159 0.64	159 0.64	294 1.18	29 0.11
Per person		1.28		1.29	
Total loss per person in 15.9 years: 2.57					

sound tooth is likely to increase the effective life of the others as in the case of overcrowding and malposition.

In *Tables III A, B, and C* are tabulated the number of teeth lost from various causes by patients in each of the three groups. Clinical experience has shown that wearing partial dentures can be prejudicial to the health of the natural teeth and therefore each group has been subdivided into "denture wearers" and "non-denture wearers". Teeth lost are given under four headings so that a better idea can be obtained of the success or failure of treatment. Obviously, a mouth that has lost, say, four teeth, to relieve overcrowding in the first year of attendance, and no more during the next 10 or 15 years, is healthier than one which has lost four teeth through caries or periodontal disease sometime during the period. Again, the loss of a misplaced or partially erupted third molar is

extracted to relieve overcrowding are shown in this subgroup; also quite a high proportion of the "third molars" appears here. Even so, the loss from these two causes is only 1.5 teeth per person in nearly 16 years. This same subgroup in the same time has only lost an average of 0.8 of a tooth because of "caries" and "periodontal" causes combined, of which the "periodontal" number is negligible. From all causes these patients have averaged a loss of only 2.31 teeth during the whole period.

The 67 patients "with dentures", on the other hand, being an older group, have lost very few teeth under the first two headings, but average 2.52 per person because of caries. Again the loss from periodontal causes is negligible. The records show that most of these were single extractions of abutment teeth, and it is interesting to note that they were lost chiefly because of caries resulting from food stagnation rather than from

abnormal stresses from the denture damaging the periodontium.

The average total loss of this subgroup is 3.25 teeth, giving a grand total for the whole

But on close examination one sees that in the latter there are very few extractions in the first two columns. There is, however, a considerable increase under the "Caries" heading,

Table III B.—LOSS OF TEETH: GROUP 2—INDIFFERENT PATIENTS

Number With Dentures	Without Dentures	Total	Extractions					
			Crowding	3rd Molars	Caries	Periodontal		
			1 0.01	36 0.6	111 1.85	—		
Per person						0.61		
Total loss per person without dentures: 2.46						1.85		
29 Per person	—	—	—	31 1.07	87 3.0	16 0.55		
Total loss per person with dentures: 4.57						3.55		
89 Per person						0.76		
Total loss per person in 17.08 years: 3.14						2.28		

of Group 1 of 2.57 teeth per person in 15.9 years, of which only half were lost through actual disease. I think that this may be considered to be satisfactory.

and, surprisingly, none in the "Periodontal" column. It will be seen, therefore, that Group 1 patients *with dentures* had a slightly higher average loss of teeth in 15.9 years (3.25)

Table III C.—LOSS OF TEETH: GROUP 3—NEGLECTFUL PATIENTS

Number With Dentures	Without Dentures	Total	Extractions					
			Crowding	3rd Molars	Caries	Periodontal		
			3 0.12	27 1.08	92 3.68	27 1.08		
Per person						1.2		
Total loss per person without dentures: 5.96						4.76		
38 Per person	—	—	—	40 1.05	210 5.53	121 3.2		
Total loss per person with dentures: 9.78						8.73		
63 Per person						1.11		
Total loss per person in 16.67 years: 8.26						7.15		

Table III B shows the tooth losses of Group 2 patients; the group is subdivided similarly to Group 1. There is little difference between the total loss of each person without dentures of Group 1 and those of Group 2.

than Group 2 patients *without dentures* in 17.08 years (2.46). This comparison is even more strikingly conclusive of the harm partial dentures can do than the comparison of "denture wearing" and "non-denture wearing"

patients of the same Group. Most of the extractions for "denture wearers" in Group 2 were because of caries of the abutment teeth. The loss from periodontal disease is still low.

The total loss for Group 2 of 3·14 teeth per person in 17·08 years—or 2·28 if only diseased conditions are considered—is not too bad.

The losses of teeth for both Groups 1 and 2 appear to be very small, however, when compared with the figures given in *Table III C*, of those incurred by "Neglectful" patients. As you see, these extractions were nearly all necessary because of disease; by caries they are increased to 3·68 in "non-denture wearers" and to 5·53 in "denture wearers"; by periodontal disease there is a definite increase to

One particularly interesting feature of the survey is the almost negligible number of teeth extracted because of periodontal disease in Groups 1 and 2: only 0·11 of a tooth in Group 1 in 16 years, and 0·18 in Group 2 in 17 years. In Group 3 also the loss from caries is greater than from periodontal disease. In the literature the consensus of opinion seems to be that the latter is the cause of, or at any rate the excuse for, the extraction of far more teeth than is caries. Taking the population as a whole that is most probably quite true. Fish points out that we know more about the pathology, aetiology, and prevention of periodontal disease than we do about caries, and this quite likely accounts for the contradiction

Table IV.—INCIDENCE OF PERIODONTAL DISEASE

Group	Number	Needed Periodontal Treatment		Incisor Region
		104 = 41·9 per cent	39 = 43·8 "	
1	248			50 = 48 per cent
2	89			28 = 71·8 "
3	63			25 = 64·1 "
Total:	400	172 = 43 per cent		103 = 60·1 per cent

1·08 without dentures, and a considerable increase to 3·2 when dentures are worn. The total average loss in 16·67 years of 9·78 teeth for denture wearers and 5·96 for patients without, and the average total for the whole group of 8·26 is very significant, especially when it is remembered that Group 3 patients made more surgery visits than those of Group 2—one series every eighteen months to one every two years. The ultimate responsibility for dental health is thus clearly shown to be the patients', and without their full co-operation treatment is merely palliative. Fortunately, the dental damnation of Group 3 patients is not absolute, and there is always time for repentance and reform. Group 1 contains a few patients who were definitely neglectful and unco-operative for the first few years and then were suddenly shocked into the realization that unless they did their share of treatment they would lose their teeth, and thereafter they have been good patients. After ten years or more of non co-operation, however, one wonders how big a shock will be needed to change the outlook of confirmed sinners—but one does not despair.

of the general findings by these recorded figures. In other words, in a practice where care of the supporting tissues is considered of paramount importance and instructions regarding the maintenance of their health are given repeatedly year after year, even the most unreceptive and neglectful of patients appear to have derived some benefit, the co-operative ones considerable benefit.

The actual incidence of periodontal disease must now be considered, and this is rather difficult to tabulate. Each of the 400 patients has had some form of periodontal treatment for early lesions, be it only scaling and instruction in correct prophylaxis, with maybe the use of astringents in addition. All these cases are not included in *Table IV*, which tabulates only those who needed and received treatment for more advanced lesions, such as the eradication of pockets by packing, cauterization, or gingivectomy, even if only affecting one or two teeth. It will be seen that rather less than half the total number (43 per cent) had treatment of this kind, some of them of course more than once. As might be expected, Group 3 showed the highest percentage (61·9),

and Group 1 a little lower than Group 2 (41.9 and 43.8 per cent respectively). It should be borne in mind that all these tables relate to ordinary patients attending for general attention to their mouths, and include very few patients who first presented because of established periodontal disease. For the reason previously given, none of the patients from my hospital clinic are included, neither are any referred by colleagues. It can be assumed that in all the patients of Group 1 when last seen the periodontal tissues were healthy; the same applies to the majority in Group 2; but in Group 3 it is a matter of rendering them as healthy as possible and still striving for co-operation.

You see that the incisor region was involved in a high percentage of cases, 60.1 per cent of the total, and of the separate groups the first showed the lowest percentage (48 per cent). In a previous publication I showed that in cases of acute ulcerative gingivitis the incisors were involved in 80.1 per cent of cases, and we know that the incidence of acute ulcerative gingivitis is dependent upon a pre-existing

periodontal lesion. The reduced percentage of lesions in the incisor region in this series is attributed to the fact that frequent supervision is being exercised, and special efforts made to overcome the "open lips" habit which is definitely associated with disease in this area.

There seems to be little more to gain by further examination of these tables—and indeed, time will not permit. Suffice it to say that they do offer encouragement to the conservative dentist, for they prove that regular inspection and attention is really worth while, and will keep a mouth healthy and retain the natural dentition for years with little loss.

Education in prevention is definitely the keynote, and prevention in dentistry is difficult; it demands constant vigilance, it brings many disappointments, but also it can bring much satisfaction.

Therefore let us, both as a society and as individuals, keep it in the forefront of our practice and our teaching and thus fulfil our true function.

PROGRAMME 1953 - 54

Monday, Oct. 5, 1953, at 5 p.m., Eastman Dental Hospital, Gray's Inn Road, W.C.1: Presidential Address by A. Frank Stammers, M.D.S.

Monday, Nov. 2, 1953, at 5 p.m., Eastman Dental Hospital, Gray's Inn Road, W.C.1: "Dermatoses affecting the Lips and Buccal Mucosa" by H. W. Barber, M.A., F.R.C.P.

Monday, Dec. 14, 1953, at 5.30 p.m., Eastman Dental Hospital, Gray's Inn Road, W.C.1: "The Free-end Saddle in relation to Periodontal Problems" by Professor J. Osborne, M.D.S., F.D.S.

Monday, Feb. 1, 1954, at 5 p.m., Eastman Dental Hospital, Gray's Inn Road, W.C.1: Calculus—A Symposium: "The Bacterial Relationship" by Arthur Bullied, L.R.C.P.,

M.R.C.S., F.D.S.; "Clinical Observations" by A. Rosenstrauch, D.M.D.; "Recent Experimental Work" by A. Bryan Wade, B.Ch.D., F.D.S.

Saturday, March 13, 1954, Birmingham Dental School: "Fundamentals of Periodontal Disease" by Professor E. B. Manley, M.Sc., B.D.S., F.D.S.

Friday, April 9, 1954, at 2 p.m., Eastman Dental Hospital, Gray's Inn Road, W.C.1: Annual Clinical Meeting; Annual General Meeting.

"No good thing is ever lost. No good action, no good example dies. It lives for ever in our race." — SAMUEL SMILES.

EXECUTIVE COUNCILS' ASSOCIATION (ENGLAND)

THE Minister of Health, in the course of his speech at the Sixth Annual Meeting, held at Torquay on Oct. 8, dealt with a policy for a Dental Service. He said that:

"We all realize the damage which bad teeth and a bad mouth can do to health. It must be the aim of every Minister of Health responsible for a National Health Service to try to minimize this damage and encourage and assist people to maintain their mouths and teeth in a healthy condition. We know that we are not doing as much here as we might at the present time. Yet any steps to encourage a greater number of people to seek dental treatment would at once land us in the serious consequences of shortage of dentists. We have already seen that the amount of dental time spent on adults must be limited if we are to maintain even a minimum service for children and young people.

"In parenthesis, I would mention that the charges for dental treatment have achieved their object of encouraging conservative work rather than dentures, and giving priority to children and young people. In 1950-51, 3 per cent of treatment in general dental services for children under 14, 44 per cent for patients over 45. Second half of 1952, 9 per cent under 14, 25 per cent over 45. In 1950-51, 26 per cent conservative and orthodontic work, 63 per cent dentures. Second half of 1952, 48 per cent conservative work and orthodontics, 38 per cent dentures. (Percentages measured by fees paid.)

"Confronted with a shortage of dentists we have hitherto usually been content to press for an expansion of the dental schools in the hopes that one day there might be enough dentists to meet all needs. But there are two facts here which are often buried. One, the dental schools are already unable to fill the places they have with students of the required calibre. The minimum dental course now lasts four years; it is second only in length and difficulty to the medical course. In each generation of young people there are only a certain number capable of undergoing a training of university standard, and from this number we must staff not only the dental and medical professions, but the other professions and many of the higher positions in commerce and industry. We have not got, nor can we expect to have, an unlimited number of people of the right calibre to take this course, and present indications are that we are unlikely to be able materially to increase the present annual intake of about 600 dental students a year, which is barely sufficient to maintain the profession at its present level of roughly 10,000 dentists in general practice.

"Second, the question must also be considered in relation to cost. The mouth, while important, is but one part of our very complicated bodies, and there are clearly limits to the amount of money we can spend on it. The Teviot Committee's estimate that 20,000 dentists (roughly double the present number) would be required to provide a public dental service was framed before we had the experience of the National Health Service. The National Health Service has shown that on average each dentist can treat roughly 800 patients a year. Taking the present population and making due allowance for all those who are already edentulous, as well as for the children and expectant mothers who ought to be seen more often than once a year, we get a required number of dentists which may well be somewhere between 40,000 and 50,000. I am not going to express

a view as to what dentists ought to be paid—that is a matter which is at present under discussion between myself and the profession—but I invite any member of the audience to form his own view of the proper gross income of a dentist in the National Health Service, to multiply it by, say 40,000, and to contemplate the answer.

"On what lines, therefore, ought we to approach this problem of the care of the teeth? The first step is obvious. Everything possible should be done to prevent dental disease. It was with this in mind that my predecessor arranged for a mission to visit the United States to study the results of the artificial fluoridation of water supplies as a means of reducing the incidence of dental caries. The report of this mission has now been published and is being carefully studied. The mission recommended that experiments should be carried out in this country in selected communities to see whether the useful results obtained in America would follow here. It was found that in America the presence of fluoride in drinking water had resulted in about 60 per cent less dental caries among children in certain age groups.

"Secondly, it is surely but commonsense to see whether some of the more simple work now done by dentists with a four- or five-year training cannot be done by rather less highly qualified workers working under a dentist's supervision. But as the law now stands we are hampered here, even in making experiments, by the fact that, with the minor exception of oral hygienists (who scale and polish teeth) working under supervision in clinics and hospitals, it is illegal for anyone other than a dentist (or a doctor) to do any kind of work in the mouth. This prohibition has stopped the dental profession developing on the same lines as the medical profession. The evolution of the medical profession has not been hampered by restrictive legislation of this sort and it has not hesitated to make the widest possible use of ancillary workers of all kinds: it is indeed one of our principal present aims to ensure that the general medical practitioner may call on the full team of ancillary helpers available to the hospital doctor. This calling in of ancillary help has in no way diminished the status and importance of the medical practitioner; on the contrary, it has enhanced them. Medicine as practised to-day would not in fact be possible without the help of nurses, physiotherapists, chiropodists, and so on. But the dentist is compelled by what may be regarded as the reverse side of a statutory monopoly to undertake even the simplest and most monotonous of procedures in the mouth because it is illegal for him to delegate it to ancillary help. He cannot even follow the example of American dentists, who have derived great help and benefit from the employment of oral hygienists but whose use in private practice in this country is illegal.

"The Government of New Zealand, when confronted by a situation such as we have here, with not enough dentists to care adequately for both adults and children, introduced under careful safeguards an ancillary dental worker known in New Zealand as the school dental nurse, who carries out extractions and fillings of children's teeth. This scheme has worked well in New Zealand, where it is supported in principle by the New Zealand dental profession. One of my predecessors, therefore, sent a mission to New Zealand to study this

scheme. Following the report of this mission, which found much to commend in the New Zealand scheme, provisions were included in the Dentists Bill, which was before Parliament last year, to enable experiments, controlled by the dental profession themselves, to be carried out in this country. These experiments would show us whether something of the sort could not be done here to help us in our difficulty. As the general conditions of life here are very different from what they are in New Zealand, the work of ancillaries in this country could, however, be under much closer supervision by dentists, and this was provided for in the Bill. This Bill did not get through all its stages in Parliament but it will be reintroduced as soon as the Parliamentary time-table permits—although I am making no prophecy when that would be. While the Bill had the support of many of the most eminent dentists in the country, it created alarm among the rank and file of the profession. I sincerely believe this alarm to have been completely misplaced. If, as a result of the experiments which might be carried out under the Bill, which would necessarily take some years, it were found advisable to introduce ancillary dental workers under careful control, the step could not, in my view, entail the least threat

to the position of any competent dentist in this country. Indeed, it should enhance his importance and status, for then, and only then, might dentists have the opportunity of becoming heads of departments in clinics and hospitals where the more simple work might be carried out by ancillary workers under their supervision and their own much greater skill and experience reserved for the more difficult and interesting cases. Then we might at last see the end of a position in which many dentists spend more than 50 per cent of their time on work requiring only a fraction of the skill and experience they have acquired in their training. The development of dental specialization, which is surely a growing need in the dental field, would in this way become much easier and dental work surely much more satisfying. Surely the best safeguard to a high standard of dental training is to spread the skill and experience of the qualified dentist over a larger number of patients. I would, therefore, ask Executive Councils, if and when the Bill is again introduced, to appeal to their dental colleagues to take a wide view of the benefit which developments on these lines may bring to the community as well as to the dental profession itself."

CRITICS' CORNER

(Under this heading we print letters which discuss points arising from articles which have appeared in the DENTAL PRACTITIONER, together with the comments of the authors when necessary. We trust that this section will prove of interest to all our readers and stimulate further discussion.)

Oct. 9, 1953.

To the Editor,
Dear Sir,

Mr. Charles Dillon's paper "The Pathological Significance of Mottled Teeth" in your August issue, which has just reached me in Hong Kong, appears to give credence to the views of those who oppose fluoridation of water supplies. Although Dillon, unlike many such opponents, goes to some pains to provide scientific evidence against fluoridation, a careful examination of his most recent paper reveals such unscientific assumptions dogmatically made, that the whole paper is immediately discounted by the discriminating student.

For example, Dillon plots a graph of D.M.F. teeth against age in South Shields, quoting figures obtained from the well-known investigation conducted in England by Forrest, Parfitt, and Bransby in 1951. For an unscientific reason he plots this graph against Ipswich figures where conditions are quite different from those obtaining in South Shields. He blandly assumes that the sharp rise in the South Shields D.M.F. rate for 36-40 year age group is due to periodontal disease, and further assumes with the air of a conjuror producing a rabbit from a hat that fluorine in the South Shields water supply has brought about this (assumed) increase in periodontal disease.

Reference to the original paper shows that the number of patients examined in South Shields (fluorine content of water 0.82 p.p.m.) in the age group 36-40 is 8 only, compared with 23, 35, 49 and 10 respectively in the lower age groups in this district. The investigators would, I am sure, agree that on the basis of only 8 examinations (even if they were selected at random, which they were not)

one is not justified in assuming that the average D.M.F. teeth rate is a true one. That the investigators gave the numbers of examinations in their table shows their careful nature. But not so Mr. Dillon. Forrest, Parfitt, and Bransby compared North Shields with South Shields and found on the basis of a small number of examinations that in the 36-40 age group of expectant and nursing mothers the figures for D.M.F. teeth were 24.4 and 25.7 respectively, a difference which is not significant. If Dillon had been honest he would have compared any age group in North Shields with the same one in South Shields, or Ipswich with Colchester, or Reading with Slough, and found that with the single exception I have mentioned above there was a markedly lower D.M.F. rate in those towns with fluorine in their water supplies as compared with those towns with negligible fluorine.

Again with regard to tea drinking, it would appear that Dillon boils his tea for ten minutes to assess the amount of extractable fluorine. He then proceeds to apply figures thus obtained (which with information at my disposal I look on with grave doubts as to their being representative) to the average home brew. A little figure juggling is sufficient for him to prove that the main cause of periodontal disease is excessive tea drinking!

I hope I have written enough to show that an unscientific approach to an examination of a scientific subject must completely discredit the conclusions which the author is attempting to draw.

Yours, etc.,

WALTER C. ALLWRIGHT.

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OFFICIAL SUPPLEMENT OF THE
**SURGICAL INSTRUMENT MANUFACTURERS'
ASSOCIATION (INC.)**
DENTAL LABORATORIES SECTION

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November, 1953

Editorial Committee: D. M. BEAUCHAMP; H. J. POTTER, F.I.B.S.T.

EDITORIAL

IT is necessary to announce that the Supplement will cease to appear after the issue of March, 1954.

This is a matter of keen regret to us, yet it is important to remember and be satisfied that the numerical growth of those in our business, and the good relations with the dental profession, made it possible even to attempt it nearly three years ago. Such a literary-professional collaboration seems to be unique in the world, made possible as it was by a loosened interpretation of the DENTAL PRACTITIONER sub-title—"A Monthly Journal for the Practitioner and his Staff".

By means of the Supplement we have been able to emphasize our code of ethics, which is an obligation of Association membership, a most important foundation for future building. There has been of recent years a surge of

organizational movement which increases in potentiality as it progresses, and if this action is sound and along the right lines, it must follow that the best elements in the industry will be strengthened.

We are pleased to publish more news from our colleagues in Israel. As in Italy, their association includes laboratory owners, their technicians, and technicians employed in dentists' premises. It is admirable that this young and energetic society, during a time of materials shortage, should have formed a committee to ensure fair distribution. May this example of leaders joining in such a committee to see that the small man is looked after be observed all over the world, for it seems to be something new in association business.

FIVE YEARS OF ACTIVITY IN THE STATE OF ISRAEL

It was in 1948 that Israel, which had just become an independent state, became involved in a war which lasted about two years. During that time activities of all associations, including the Israel Association of Dental Technicians, were limited and meetings were curtailed. With the close of the war organizations resumed their normal functions, re-activating component groups which had almost ceased

to exist, calling meetings, and planning conventions.

For dental technicians the year of 1950 saw the return of scientific lectures, educational sessions, guest speakers, and visitors from abroad; that year also saw discussion of price problems, materials supplies, apprentices' regulations, and a dental technicians' ordinance.

The Israel Association is open to all dental technicians, irrespective of their position, as laboratory owners, technicians employed by laboratories, or working in dentists' premises. Therefore the main field of effort is concentrated on the cultural side of the various problems facing the Association, which is of common interest and importance to all members.

For administration purposes the country has been divided into three districts: Haifa (which includes the central committee), Tel Aviv, and Jerusalem. Each district is led by a local committee of five or seven members, who are democratically elected by the annual general meeting of the district. The local committees send their delegates (one each from Haifa and Jerusalem, and two from Tel Aviv) to the central committee, where in addition two Haifa members serve at present as chairman (Mr. E. Rader) and secretary (Mr. S. Livni); thus the central committee numbers six members, and it directs the work of the Association by means of sub-committees.

A sub-committee for prices discussed at length with the dental surgeons all problems concerning the price list for prosthetic work, and on the other hand endeavoured to supervise members in order to ensure that the price list was actually observed. A sub-committee to watch supplies was of special importance during the last few years, as owing to a shortage of some materials on the local market it became necessary to organize a fair distribution among the members. Sub-committees for training of apprentices, and watching legislation, are working well.

The main stress, however, was at all times on the activity of the cultural committee, which undertook the important task of ensuring that the renowned high professional standard of the dental technicians of Israel was maintained. Four national conventions were organized. The 1950 scientific meeting, which attracted about three hundred technicians from all parts of the country, included talks, table clinics, lectures, films, and social events.

The 1951 rally took the form of a national refresher course, conducted by Dr. Jacob

Schwartz, from New York, covering within the short limits of three days almost all branches of prosthetic work, and introducing many new and modern achievements.

The outstanding event of the 1952 convention was the visit of Mr. R. J. Rothstein, the first President of the National Association of Dental Laboratories of America, and of Mrs. Rothstein. After touring the country and visiting dental factories and public and medical



Opening Session presidium, Tel Aviv, 1953.

Left to Right: Mr. Slochowsky, Mr. Entin, Mr. S. Livni (Secretary), Mr. E. Rader (National President), Mr. Wolf, Jerusalem, Mr. H. Z. Weissmann (Cultural Committee), Mr. Kaplan, and Mr. Levkowitz.

institutions, they were given official receptions by the local branches. In a talk given at the reception in Tel Aviv, Mr. Rothstein assured the members of his assistance in preparing equipment and the setting up of a dental training and research laboratory.

The stimulus of such a personality, and his splendid ideas concerning organizational and cultural work, rooted deeply in the minds of responsible technicians in Israel. Membership increased steadily, and the growing understanding of the members of the committees, and the readiness of members to co-operate for a better professional standard, resulted in the demand for another national meeting in May, 1953, at the Magen David Adom Building in Tel Aviv.

It had been felt necessary to sum up the achievements in dental prosthetics during the last years, and at the same time to enable technicians who were recent immigrants, or who had established laboratories recently, to acquire suitable opportunity for professional

improvement, to meet their colleagues, to exchange views and discuss affairs of interest. In addition the occasion was chosen to be the opening of a campaign for the establishment of the Robert Rothstein Test and Study Laboratory in Tel Aviv, which will also serve the dental industry for research purposes.

Opening the first session, Mr. H. Z. Weissmann stressed the two aims of training and



Opening Session, Tel Aviv, 1953.

First Row: Delegates from Ministry of Health, Dental Association, Dental Practitioners' Association, and Army Medical Services.

professional perfection; Mr. E. Rader explained the necessity for local and national organization; Mr. S. Livni dedicated his speech to dentist-technician relations: ". . . both must be regarded as partners in the service to public health . . . there will be no alternative in the future, except close co-operation . . ."

Greetings were personally brought from the Ministry of Health, Israel Dental Association, Israel Association of Dental Practitioners, Israel Army Dental Service, by cables and letters from abroad; and Mr. Bogoslavski, the oldest technician in Tel Aviv, expressed his joy at the growth of the Association.

Spread over two days, three dental surgeons gave lectures, seven table clinics were conducted by technician members, and dental manufacturers and dealers exhibited their goods. An evening dinner party was devoted to the Rothstein Laboratory campaign and first subscriptions totalling £1 1000 were received.

This most successful convention was attended by over four hundred technicians and about two hundred guests.

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Broadcasting later over the Kol Israel (Voice of Israel) and heard by the whole country, Mr. H. Z. Weissmann related all that had transpired, outlined the aims and activities of the Association, and referred to their important task of absorbing the new immigrant technicians.

In spite of the many special difficulties faced by a young country, it has been generally



Clinical and commercial exhibition, Tel Aviv, 1953.

felt that the problems are very similar to those existing in other lands; from reports received by guests from abroad and from our own members who have conversed with colleagues in France and England, this fact has become more and more evident.

The place of the Israel Association of Dental Technicians must therefore be together with all other technicians' associations throughout the world, and Israel will not fail to fulfil her part in the mutual advancement of all progressive dental technicians, always and everywhere.

OTHER FOREIGN NEWS

THE Swiss Laboratory Association held an Autumn Conference, Sept. 26-27, and a report will be published next month. A greetings telegram was sent by our President, Mr. E. G. Emmett, who during his holiday this year visited various members and met M. Victor Mettler, a Past President for many years.

The National Association of Dental Laboratories of America attracted a large number of men from all parts of the U.S.A. to the Annual Conference of Oct. 8-11, at Washington.

November, 1953

A greetings telegram was sent to this convention also.

International Union of Dental Laboratories: Advantage was taken of the Fourth Congress of the *Federation of Swiss Dental Technicians*, Oct. 10-12, to assemble at the Kongresshaus, Zurich, on Oct. 11. Delegates from Belgium, France, and Italy were present, but it was not possible for Great Britain to be repre-

sented on this occasion. Preparations were made for the next meeting to take place in Milan in 1954, and the future bi-lingual periodical, *The Dental Laboratory*, was discussed. A telegram of good wishes was sent from S.I.M.A.

The Annual Dinner and Dance of the *Belgian Association* will be held at the Hotel des Colonies, Brussels, Nov. 28.

NEWS FROM HEAD OFFICE

Legal Requirements in Holland.—A correspondent in Holland informs us that since December, 1952, a dental laboratory cannot be established in that country unless it satisfies a number of legal regulations, and that a laboratory can only be transferred to another owner if the successor complies with certain legal requirements. These are: (1) Solvency (sufficient working capital). (2) Sufficient knowledge of working theory, book-keeping, calculation, commercial practice, knowledge of the law, language, and correspondence. This must be demonstrated by an examination. (3) Professional ability—(a) Theoretical: Laws concerning laboratories, nomenclature, anatomy, chemistry, physics, electricity, knowledge of materials and tools; (b) Practical: Ability to make and repair specimens of work of dental technique. For these an examination must also be passed.

The Dutch Laboratories Association is mainly responsible for the examinations for laboratory owners.

Payment for Holidays.—The following revised clause governing payment for holidays has been approved by the National Joint Council:—

"In addition to six Bank or Statutory Holidays per annum, annual holidays shall be granted to employees who have completed not less than six months' service. The basis of calculation shall be one working day's holiday for each month of service completed with the same employer prior to May 1 of each year.

"An employee leaving after a period of employment in respect of which he has not

received a holiday, shall be entitled to the annual holidays accruing to him, or shall receive payment in lieu thereof, on the basis of one day's pay in respect of each month of service qualifying for holiday. Holidays shall not accumulate from year to year and no employee leaving shall be entitled to receive holidays, or pay in lieu, so as to bring the sum of his paid holiday over the whole period of his employment above a total of one day's holiday for each month served.

"Annual holidays shall normally be taken in one period of consecutive days, but by mutual consent of the parties the annual holiday may be divided into two periods of consecutive days.

"An employee dismissed for misconduct shall not be entitled to any holiday with pay or payment in lieu thereof."

N.J.C. Disputes Committee.—Endeavours are being made to arrive at an agreed procedure for the N.J.C. Disputes Committee, and a draft is now being framed which will be submitted to the constituent bodies for their observations prior to the next meeting of the N.J.C.

Revision of Model Indenture.—Experience has shown that various amendments to the N.J.C. model indenture are now desirable, and proposals are being tabled by Mr. Sidney Davis, our legal adviser, in consultation with the main committee, which will be recommended to the National Joint Council. Among other revisions it is hoped to introduce clauses to protect the employer in the case of death or permanent incapacitation of an apprentice, and an extension of the term

of the indenture to cover absence on military service.

City and Guilds.—In view of complaints from Educational Authorities regarding the low educational standard and capacity of a large number of apprentices taking the City and Guilds courses, the constituent bodies have been asked to bring to the notice of their members their commitments as employers and the desirability of exercising the utmost care in selecting boys for apprenticeship, to ensure that entrants into the craft have reached a suitable educational standard to enable them successfully to complete the City and Guilds courses. Members are therefore asked to bear this in mind before entering into indentures, and information regarding the legal aspects of apprenticeship may be obtained on application to Head Office.

Undertaking of Denture Work by a Health Centre.—Our attention has been called to a circular issued to Hospital Management Committees by a Regional Dental Officer to the effect that arrangements had been made for denture work, including repairs and the provision of splints, to be undertaken at a Health Centre at certain specified prices. In view of the uneconomic prices listed, representations have been made to the Ministry of Health.

Draft British Standard Specification for Acrylic Denture Base.—A draft specification has been prepared by the B.S.I. Technical Committee which is dealing with denture base materials, and this has been approved by the main committee.

Week-end Conference.—Our Annual Week-end Conference will be held at the Holborn Restaurant on Feb. 12-13, and members are asked to reserve these dates. At the Dinner-Dance on Feb. 12, a presentation will be made to Mr. A. J. Grant in token of appreciation of his many years of service to the Association.

Summer Conference, 1954.—An invitation has been received from the Birmingham Branch to hold the Summer Conference next year in their area. This was gratefully accepted by the main committee and the conference will therefore take place in Birmingham on a Saturday early in June. Further details will be circulated later.

New Members.—The Maple Leaf Dental Laboratory, 3, Upper Lemon Villas, Truro, hitherto affiliated members, have now been elected to full membership.

Mr. Sidney Davis's Illness.—Members will regret to hear that Mr. Sidney Davis, our legal adviser, has recently undergone an operation, and will join us in wishing him a speedy and complete recovery of health and strength.

WARNING NOTICE !

Sale of Scrap Gold.—Some members have reported that a man called, gave good references, and took away gold scrap for which he exchanged cheques later returned R/D. We have learned that dental surgeons also have been duped. Others who have suffered similar losses are asked to report to Head Office, giving full details.

NEWS FROM THE BRANCHES

West of Scotland.—The Annual General Meeting was held on Monday, Sept. 21, at the Grand Hotel. We regret to announce that Mr. J. S. Fountain relinquished his position as secretary, and was given a very well earned vote of thanks for the able way he had carried out his duties during the difficult years which have passed.

Mr. R. B. Wilson, 36, West Prince's Street, Glasgow, C.4, was elected as secretary, and the branch is carrying out a recruiting campaign,

each member endeavouring to bring along one other new member.

Meetings will be held on the third Monday of each month at 7.30 at the Grand Hotel, Charing Cross, Glasgow, C.3.

Northern.—(Secretary, Mr. C. Bradshaw, 608, Bolton Road, Pendlebury, Lancs.) The Annual General Meeting will be held on Saturday, Nov. 21, at 2 p.m., at the College for Adult Education, 49, Lower Molesley Street, Manchester 2.